

**AMENDMENTS TO THE CLAIMS**

1. (Currently amended) A biochip, comprising a substrate defining a plurality of fluid holding areas, there being fluid separating means for preventing mixing of fluids held in said areas until the application of pressure to one or more said fluid, characterised in that the biochip comprises at least a first ~~substance~~ reactant in a first fluid holding area, said first ~~substance~~ reactant being in a substantially inactive or dormant condition, and a second ~~molecule~~ reactant capable of activating the first ~~substance~~ reactant in a second fluid holding area, the first and second fluid holding areas being separated by said fluid separating means and the pressure is applied to said one or more fluids following application of light to an expansible element located adjacent to and upstream of the one or more fluid.

2. (Cancelled)

3. (Cancelled)

4. (Currently amended) A biochip according to claim [[3]] 1, wherein the expansible element is expansible upon application of light thereto at a suitable wavelength to cause heating of the expansible element.

5. (Previously amended) A biochip according to claim 1, wherein the or each separating means comprises a frangible membrane or film.

6. (Original) A biochip according to claim 5, the membrane or film comprising a polymer.

7. (Original) A biochip according to claim 6, the polymer comprising nitrocellulose, polyethylene, or polypropylene.

8. (Previously amended) A biochip according to claim 1, wherein the or each separating means comprises a fluid.

9. (Original) A biochip according to claim 8, wherein the fluid comprises mineral oil, vegetable oil, or paraffin.

10. (Original) A biochip according to claim 8, wherein the fluid comprises a metal which is liquid at room temperature.

11. (Original) A biochip according to claim 10, wherein the metal comprises mercury or Gallium.

12. (Currently amended) A biochip according to claim [[3]] 1, wherein the expandable element is a liquid.

13. (Currently amended) A biochip according to claim [[3]] 1, wherein the expandable element comprises an aqueous suspension of activated charcoal, a colloidal suspension, glycerol, oil, a gel or a polymer.

14. (Previously amended) A biochip according to claim 1, further including a micro-organism in a first of said fluid holding areas, the micro-organism being in a substantially inactive or dormant condition, and a fluid in a second of said fluid holding areas in fluid communication with the first of said fluid holding areas and separated therefrom by a said separating means, the fluid being adapted to reactivate the micro-organism.

15. (Original) A biochip according to claim 14, wherein the micro-organism is a bacterium.

16. (Original) A biochip according to claim 14, wherein the micro-organism is a fungus.

17. (Original) A biochip according to claim 16, wherein the fungus has been bio-engineered to luminesce or fluoresce in the presence of a pre-selected analyte, such that the luminescence or fluorescence output varies in response to the presence or absence of the analyte, the fluid in the second said area comprising the analyte.

18. (Previously amended) A biochip according to claim 14, wherein the reactivating fluid comprises or includes water.

19. (Previously amended) A biochip according to claim 14, wherein the reactivating fluid comprises or includes a mixture of water and nutrients required to stimulate activation/germination and growth of the micro-organism.

20. (Previously amended) A biochip according to claim 14, wherein the micro-organism is disposed in a hydratable matrix.

21. (Original) A biochip according to claim 20, the matrix comprising an acrylamide based polymer or hydrogel, or a filter paper.

22. (Withdrawn) A biochip according to claim 1, further including a protein or nucleic acid in one of said fluid holding areas, said protein or nucleic acid being in a form requiring activation.

23. (Withdrawn) A biochip according to claim 22, wherein the protein is an enzyme requiring the presence of a co-factor or substrate for activity.

24. (Currently amended) A biochip according to claim 1, further comprising a cover disposed at its upper (~~in use~~) surface, the cover comprising one or more perforation.

25. (Original) A biochip according to claim 24, the cover comprising filter paper.

26. (Original) A biochip according to claim 24, the cover comprising a dialysis membrane, or a perforated film.

27. (Original) A biochip according to claim 24, the cover comprising a self-sealing membrane comprising silicone, latex or rubber.

28. (Currently amended) A biochip according to claim 1, including a lower (~~in-use~~) surface comprising of a transparent material.

29. (Currently amended) A biochip according to claim 28, the lower (~~in-use~~) surface comprising a glass, polycarbonate or polystyrene.

30. (Previously Amended) A biochip according to claim 1, wherein the substrate comprises silicon.

31. (Previously Amended) A biochip according to claim 1, comprising three fluid holding areas, a first containing a sample of cells, a second containing a fluorescent dye or probe, and a third containing a fixative, the areas being in fluid communication and separated from one another by separating elements.

32. (Previously Amended) A biochip according to claim 1, comprising four fluid holding areas, a first containing a sample of cells, a second containing a growth medium, a third containing a substrate, fluorescent dye or probe, and a fourth containing an unknown test substance, the areas being in fluid communication and separated from one another by separating elements.

33 - 38. (Cancelled)

39. (Currently amended) A biochip according to claim 1, wherein the first ~~substance~~ reactant is a biomolecule.

40. (Currently amended) A biochip according to claim 13, wherein the first ~~substance~~ reactant is a biomolecule.